

CLAIMS

1. A DNA chain having characteristic of increasing carotenoid production, and containing the nucleotide sequence which encodes the polypeptide having the amino acid sequence substantially described in ~~SEQUENCE ID No. 1~~ ^{SEQ ID NO: 1}, or a DNA chain which hybridizes with said DNA chain.

2. A DNA chain having characteristic of increasing carotenoid production, and containing the nucleotide sequence which encodes the polypeptide having the amino acid sequence substantially described in ~~SEQUENCE ID No. 2~~ ^{SEQ ID NO: 2}, or a DNA chain which hybridizes with said DNA chain.

3. A method for producing carotenoid characterized by introducing DNA chain described in ~~one of claim 1 or 2~~ into carotenoid-producing microorganisms, culturing said transformed microorganism and obtaining higher carotenoid content in the culture broth and cells .

4. A method for producing carotenoid characterized by introducing DNA chain containing the nucleotide sequence which encodes the polypeptide having the amino acid sequence substantially described in ~~SEQUENCE ID No. 3~~ ^{SEQ ID NO: 3}, or DNA chain which hybridizes with said DNA chain introducing to carotenoid-producing microorganism, culturing said transformed microorganism and obtainig higher carotenoid content in the culture broth and cells .

SECRET 6/28/80

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